IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Philip Jacoby	)	Art Unit: 1772
	)	
Application No.: 10/824,730	)	Examiner: Chevalier, A. A.
	)	
Filing Date: April 15, 2004	)	Confirmation: 6721
	)	
For: "EXTRUDED POLYPROPYLENE SHEETS CONTAINING BETA SPHERULITES"	)	

DECLARATION UNDER 37 C.F.R. § 1.132 OF PHILIP JACOBY

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

NEEDLE & ROSENBERG, P.C.
Customer No. 23859

Sir:

The undersigned, Philip Jacoby, a citizen of the United States residing at 4325 Granby Way, Marietta, Georgia 30062, declares that:

1. I am Vice President of Technology of Mayzo, Inc. ("Mayzo"), a Norcross, Georgia polymer research, development, and manufacturing company as well as the inventor listed on the above-identified application.

2. During 2004, I contacted Tenax Corporation ("Tenax"), an Italian polymer manufacturing company, to ascertain whether the company would be interested in using Mayzo's polymer additive technologies in their European geogrids production operations. After execution of a confidentiality agreement, I disclosed details of Mayzo's polymer additives technologies, including portions of technology described in U.S. Serial No. 10/824,730, to various technical personnel serving as Italian employees of Tenax.

3. After the filing date of this application, on or about June 1, 2004, I received an email from Giorgio Pirovano, an Italian technical officer of Tenax, informing me that Tenax had been using blends of commercially available polypropylenes to produce their geogrids in Europe. The email also alleged that the some of the blends may have contained beta-nucleated resins. A copy of this email (4 pages) is attached hereto.

4. After the filing date of this application, on or about June 4, 2004, I received another email from Mr. Pirovano informing me that Tenax had been using beta-nucleated polypropylene resin "since about the 1990." A copy of this email (1 page) is also attached hereto.

5. After the filing date of this application, in approximately July 2004, while visiting Vigano, Italy, I conducted production trials with Tenax, using Mayzo's beta-nucleated propylene resins to produce geogrids in Italy.

6. I have no personal knowledge of any U.S. production or U.S. sales of geogrids produced from extruded, beta-nucleated polypropylene sheets prior to April 15, 2004.

7. On or about September 25, 2007, during a routine business teleconference, I was informed by Ben Milazzo, owner and President of Mayzo, that he had been told in 2007 by Cesare Beretta, Chief Executive Officer of Tenax, that Tenax provided one or more samples of geogrids produced from beta-nucleated polypropylene to Tensar Corporation, a U.S. polymer manufacturing company, during litigation discovery procedures of a U.S. patent infringement suit in the 1990s.

8. Upon information and belief, the infringement suit, at least in part, dealt with U.S. Patent No. 4,374,798 to Mercer and/or related U.S. patents, which is directed to the production of geogrids, but does not disclose or describe beta-nucleation processes. Upon information and belief, the suit concluded with Tenax enjoined from producing geogrids in the United States.

9. Upon information and belief, Mr. Milazzo has no personal knowledge of any public use within the United States or public knowledge within the United States of geogrids produced from extruded, beta-nucleated polypropylene sheets prior to April 15, 2004.

10. I have no personal knowledge of any public use within the United States or public knowledge within the United States of geogrids produced from extruded, beta-nucleated polypropylene sheets prior to April 15, 2004.

11. I declare that all statements made herein of my own knowledge and belief are true and that all statements made on information and belief are believed to be true, and further, that the statements are made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Philip Jacoby, PhD

Dated: October 26, 2007

From: *giorgio.pirovano <giorgio.pirovano@tenax.net>*
To: *Phil Jacoby <pjacoby@mayzo.com>, philipjacoby@hotmail.com*
CC: *cesare beretta <cesare.beretta@tenax.net>, pierluigi maggioni <pierluigi.maggioni@tenax.net>, daniele molteni <daniele.molteni@tenax.net>*
Subject: *R: Set-up Trial With Mayzo*
Date: *Tue, 1 Jun 2004 11:13:59 +0200*

Dear Mr Jacoby,
about yours questions here below are some answers:

- Question: Properties of the PP we use.
  Usually for the manufacturing of the grid we use a mixture of two types of PP:
  1° type:
  Physical Properties:

Density:	905 kg/m3 (ISO 1183);
Melt Flow rate:	0,3 g/10 min (230°C; 2,16 kg) (ISO 1133);
Tensile stress at Yield:	30 MPa (50 mm/min) (ISO 527-2);
Elongation at Yield:	10 % (50 mm/min) (ISO 527-2);
Moduls of Elasticity in Tension:	1300 MPa (1 mm/min) (ISO 527);
Charpy Impact Strength, notched:	50 kJ/m2 (+23°C) (ISO 179/1eA);
Charpy Impact Strength, notched:	5 kJ/m2 (-20°C) (ISO 179/1eA);
Vicat Softening Temperature:	91°C B (50 N) (ISO 306);
Heat Deflection Temperature:	96°C (HDT) (ISO 75 B);

  2° type:
  Physical Properties:

Density:	902 kg/m3 (ASTM-D-1238-L);
Melt Flow rate:	2,2 g/10 min (230°C; 2,16 kg) (ASTM-D-1505);
Tensile stress at Yield:	35 MPa (50 mm/min) (ASTM-D-638);
Elongation at Yield:	9 % (50 mm/min) (ASTM-D-638);
Charpy Impact Strength, notched:	5/138 kJ/m2 (+23°C) (ASTM-D-256);
Charpy Impact Strength, notched:	2,7/58 kJ/m2 (0°C) (ASTM-D-256);
Vicat Softening Point:	153/94 °C (9,8/49 N) (ASTM-D-1525-A);
Heat Deflection Temperature:	91/58°C (455/1820 kPa) (ASTM-D-648);

  The first polypropylene contains a nucleating agent (our supplier can't tell us which one) that permits to obtain a β structure in the PP (see the "PP Graphic" enclose).

- Question: Quantity of Carbon Black in the grid.
  2% of Carbon Black

- Question: Thickness of the extruded sheet we will produce during the trial.
  About 6 mm

- Question: Temperature of the roll of extruded sheet, and production process.
  Our production process is continuous, we extrude a sheet that cools in a water tank (the temperature of the water is about 30°C) soon after the sheet is stretched in the machine direction an that, the oriented sheet, is stretched in the transversal direction.
So we can evaluate the action of your nucleating agent at once.

- Question: Data sheet of the grid we will produce during the trial.
  See file enclose (the grid is the LBO 330)

- Question: Sample of the grid we will produce during the trial
  Could you confirm this address:
  Mayzo Corporation
  6577 Peachtree Industrial Blvd.
  Norcross, GA 30092-3757
  USA
  after you confirmation we will send you the sample.

You wrote to Mr. Beretta that at the moment you have 140 kg of nucleating agent available , this quantity is enough for the trial so could you send it please? (see the address below)
As soon as we receive the material, we could organize the trial and define a date (likely after 16/06/04).

Regards
Giorgio Pirovano
Ufficio Tecnico
TENAX s.p.a.
via dell'Industria, 3
23897 Viganò (Lecco)
ITALY
Tel. +39 039.92191
Fax. +39 039.9219290
e-mail: giorgio.pirovano@tenax.net

-----Messaggio originale-----
Da: Phil Jacoby [mailto:pjacoby@mayzo.com]
Inviato: venerdì 28 maggio 2004 23.16
A: giorgio.pirovano@tenax.net
Cc: cesare beretta; pierluigi maggioni
Oggetto: Set-up Trial With Mayzo

Dear Mr. Pirovano:

Mr. Beretta indicated that you would be contacting me with some information regarding the proposed trial using our nucleant concentrate on your production line, and providing information on the amount of concentrate needed for the trial, and where it would be shipped to. I would like to know if you have finallized the dates for this trial (I had suggested June 10 and 11), and whether these dates are still viable in terms of the time that it would take to air-ship you the material. Since Monday, May 31, 2004 is a holiday in the US, I will not be back in my office until June 1st, and that is the earliest date that the material can ship.

I look forward to hearing back from you.

Best regards,

Phil Jacoby

Dr. Philip Jacoby
Vice President of Technology
Mayzo Corporation
6577 Peachtree Industrial Blvd.
Norcross, GA 30092-3757
Phone: 770-449-9066 ext. 14
Fax: 770-449-9070
e-mail: pjacoby@mayzo.com

TENAX **LBO SAMP**

Type: **220 - 330 - 440**

Bi-oriented geogrids

TENAX **LBO SAMP** are polypropylene geogrids especially designed for soil stabilization and reinforcement applications.
The **LBO SAMP** geogrids are manufactured from a unique process of extrusion and biaxial orientation to enhance their tensile properties.
TENAX **LBO SAMP** features consistently high tensile strength and modulus, excellent resistance to construction damages and environmental exposure. Furthermore, the geometry of the TENAX **LBO SAMP** allows strong mechanical interlock with the soil being reinforced.

Typical applications

Base reinforcement; reduction of required structural fill; load distribution; reduction of mud pumping; subgrade stabilization; embankment stabilization; slope reinforcement; erosion control mattresses.

PHYSICAL CHARACTERISTICS	TEST METHOD	UNIT	DATA	NOTES
STRUCTURE			BI-ORIENTED GEOGRIDS	
MESH TYPE			RECTANGULAR APERTURES	
STANDARD COLOR			BLACK	
POLYMER TYPE			POLYPROPYLENE	
CARBON BLACK CONTENT	ASTM D1603		2.0%	
PACKAGING	ISO 10320		ROLLS IN POLYETHYLENE BAGS WITH I.D. LABEL	

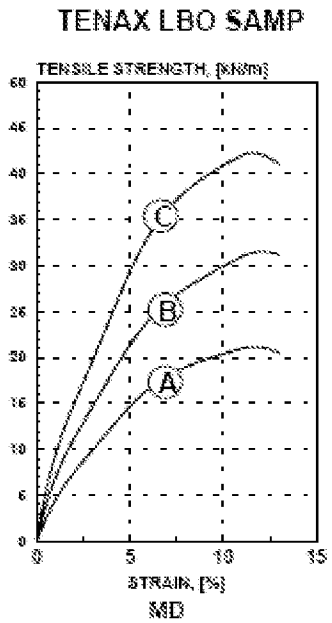
DIMENSIONAL CHARACTERISTICS	TEST METHOD	UNIT	LBO 220 SAMP	LBO 330 SAMP	LBO 440 SAMP	NOTES
APERTURE SIZE MD		mm	41	40	34	b,c
APERTURE SIZE TD		mm	31	27	27	b,c
MASS PER UNIT AREA	ISO 9864	g/m²	270	420	550	b
ROLL WIDTH		m	4.0	4.0	4.0	b
ROLL LENGTH		m	100	75	50	b
ROLL DIAMETER		m	0.41	0.46	0.52	b
ROLL VOLUME		m³	0.69	0.94	1.10	b
GROSS ROLL WEIGHT		kg	115.5	194.0	137.0	b

TECHNICAL CHARACTERISTICS	TEST METHOD	UNIT	LBO 220 SAMP		LBO 330 SAMP		LBO 440 SAMP		NOTES
			MD	TD	MD	TD	MD	TD	
STRENGTH AT 2% STRAIN	ISO 10319	kN/m	7.0	7.0	10.5	10.5	14.0	15.0	b,c,d
STRENGTH AT 5% STRAIN	ISO 10319	kN/m	14.0	14.0	21.0	21.0	28.0	30.0	b,c,d
PEAK TENSILE STRENGTH	ISO 10319	kN/m	20.0	20.0	30.0	30.0	40.0	40.0	a,c,d
YIELD POINT ELONGATION	ISO 10319	%	11.0	10.0	11.0	10.0	11.0	11.0	b,c,d

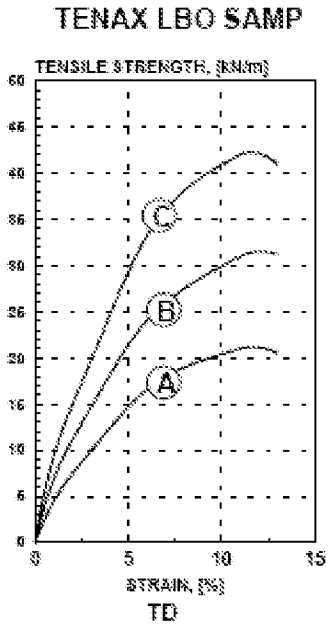
NOTES:
a) 95% lower confidence limit values, ISO 2602
b) Typical values
c) Tests performed using extensometers
d) MD: machine direction (longitudinal to the roll)
TD: transverse direction (across roll width)

TENAX®
Man, Technology, Environment.

Typical Tensile Characteristics



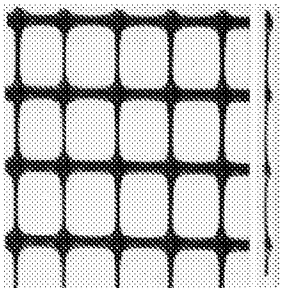
MD



TD

GEOGRID TYPE:

A = TENAX **LBO 220 SAMP**
B = TENAX **LBO 330 SAMP**
C = TENAX **LBO 440 SAMP**



0799-CPD-25

The TENAX Laboratory has been created in 1980 and has been continuously improved with the purpose of assuring unequalled technical development of the products and accurate Quality Control.

The TENAX Laboratory can perform mechanical, hydraulic and durability tests, according to the most important international standards like ISO, CEN, ASTM, DIN, BS, UNI.

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Fax (+39) 039.9219200
e-mail: geo.div@tenax.net
Web Site: www.tenax.net

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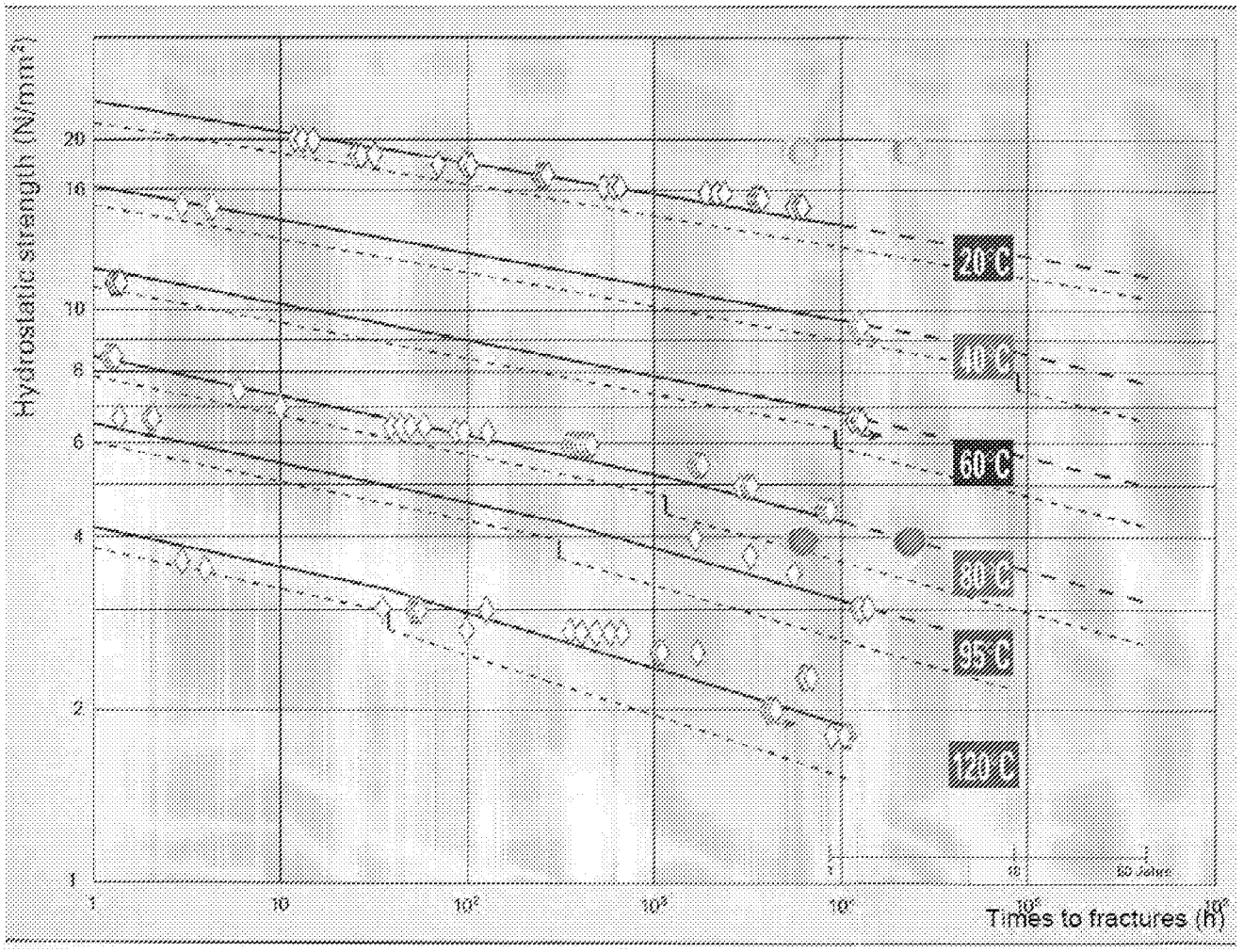
TENAX®
Man, Technology, Environment.

Beta (β)-PP



Hydrostatic pressare resistance

Regression curves according to ISO TR 9080:

——— LTHS

- - - - - - LCL

◇→ In progress

From: *giorgio pirovano <giorgio.pirovano@tenax.net>*
To: *Philip Jacoby <philipjacoby@hotmail.com>*
CC: *pierluigi maggioni <pierluigi.maggioni@tenax.net>, cesare beretta <cesare.beretta@tenax.net>*
Subject: *R: R: Set-up Trial With Mayzo*
Date: *Fri, 4 Jun 2004 16:06:01 +0200*

Dear Mr Jacoby,
here are some answers:

1. We have been using this beta nucleated PP resin since about the 1990.

2. The maximum % of beta nucleated PP resin in our mixture is about 67%; we have never measured the melt flow rate of the mixture.

3. We haven't measured the level of beta crystallinity.

4. During the trial we could be use only the 2,2 PP resin.

6. We will send you the extruded sheet too, as soon as we can.

7. Yes, we extrude directly in water, we don't wrap the sheet on a cooling roll.

8. We will pay the shipping costs; our shipping agent is FedEx, the account number is 176225785.

Regards

Giorgio Pirovano

-----Messaggio originale-----
Da: Philip Jacoby [mailto:philipjacoby@hotmail.com]
Inviato: martedì 1 giugno 2004 16.39
A: giorgio.pirovano@tenax.net; pjacoby@mayzo.com
Cc: cesare.beretta@tenax.net; pierluigi.maggioni@tenax.net; daniele.molteni@tenax.net
Oggetto: RE: R: Set-up Trial With Mayzo

Dear mr. Pirovano:

Thank you for answering my questions, and for providing the attached information. In response to your answers, I have a few additional questions. I was not aware that you were already using a beta nucleated PP resin in your production of the geogrid product.

1. Can you tell me how long you have been using this beta nucleated PP resin as part of a mixture of resins?
2. What is the proportion of the two types of PP resins that you are using, and what is the final melt flow rate of the sheet that you are extruding?
3. Have you done any work to measure the level of beta crystallinity in the extruded sheet using either DSC or x-ray diffraction analysis? If you have, can you tell me how much beta crystallinity is present in the sheet?
4. During a trial using our beta nucleant concentrate, you would have to add this concentrate to a non-nucleated PP resin, in order to see the effect of the concentrate on physical properties and processability. Would you be using the 2.2 melt flow rate resin for this purpose, or would another, lower melt flow rate resin be used? If the 0.3 melt flow rate beta nucleated PP represents a significant % of the total mix for your current product, then the non-nucleated PP resin should have a melt flow rate that matches the effective melt flow rate of your current mixture.
5. I am familiar with the Borealis beta nucleated PP resin that you aare currently using as part of your resin mixture, and I also know what beta nucleating agent they are using. We use a different beta nucleating agent in our masterbatch concentrate.
6. The address that you have for our company is correct. If possible, I would also like to receive a small piece of the extruded sheet, before it has been oriented. In order to avoid interupting your process, this piece could be take from the edge-trim that you are probably removing from the extruded sheet.
7. You said that the extruded sheet is cooled in a water tank. Does this mean that you extruded the sheet directly into the water, or does the sheet first wrap around a cooling roll before coming in contact with the water?
8. With regard to the shipment of the 140 kg of our nucleating masterbatch, would you be able to pay for the shipping costs and provide us with the name of the shipping agent that you use, and an account number for this agent.

Thanks very much for your help.

Best regards,

Phil Jacoby

Phil Jacoby
(770) 317-0976 >From: giorgio pirovano <giorgio.pirovano@tenax.net> >To: Phil Jacoby <pjacoby@mayzo.com>, philipjacoby@hotmail.com >CC: cesare beretta <cesare.beretta@tenax.net>, pierluigi maggioni <pierluigi.maggioni@tenax.net>, daniele molteni <daniele.molteni@tenax.net> >Subject: R: Set-up Trial With Mayzo >Date: Tue, 1 Jun 2004 11:13:59 +0200 > >Dear Mr Jacoby, > about yours questions here below are some answers: > >- Question: Properties of the PP we use. > Usually for the manufacturing of the grid we use a mixture of two types >of PP: > 1° type: > Physical Properties: > Density: 905 kg/m3 (ISO 1183); > Melt Flow rate: 0,3 g/10 min (230°C; >2,16 kg) (ISO 1133); > Tensile stress at Yield: 30 MPa (50 mm/min) (ISO >527-2); > Elongation at Yield: 10 % (50 mm/min) (ISO >527-2); > Moduls of Elasticity in Tension: 1300 MPa (1 mm/min) (ISO 527); > Charpy Impact Strength, notched: 50 kJ/m2 (+23°C) (ISO 179/1eA); > Charpy Impact Strength, notched: 5 kJ/m2 (-20°C) (ISO 179/1eA); > Vicat Softening Temperature: 91°C B (50 N) (ISO 306); > Heat Deflection Temperature: 96°C (HDT) (ISO 75 B); > > 2° type: > Physical Properties: > Density: 902 kg/m3 >(ASTM-D-1238-L); > Melt Flow rate: 2,2 g/10 min (230°C; >2,16 kg) (ASTM-D-1505); > Tensile stress at Yield: 35 MPa (50 mm/min) >(ASTM-D-638); > Elongation at Yield: 9 % (50 mm/min) >(ASTM-D-638); > Charpy Impact Strength, notched: 5/138 kJ/m2 (+23°C) (ASTM-D-256); > Charpy Impact Strength, notched: 2,7/58 kJ/m2 (0°C) (ASTM-D-256); > Vicat Softening Point: 153/94 °C (9,8/49 N) >(ASTM-D-1525-A); > Heat Deflection Temperature: 91/58°C (455/1820 kPa) >(ASTM-D-648); > > The first polypropylene contains a nucleating agent (our supplier can't >tell us which one) that permits to obtain a b structure in the PP (see the >"PP Graphic" enclose). > >- Question: Quantity of Carbon Black in the grid. > 2% of Carbon Black > >- Question: Thickness of the extruded sheet we will produce during the >trial. > About 6 mm > >- Question: Temperature of the roll of extruded sheet, and production >process. > Our production process is continuous, we extrude a sheet that cools in a >water tank (the temperature of the water is about 30°C) soon after the sheet >is stretched in the machine direction an that, the oriented sheet, is >stretched in the transversal direction. >So we can evaluate the action of your nucleating agent at once. > >- Question: Data sheet of the grid we will produce during the trial. > See file enclose (the grid is the LBO 330) > >- Question: Sample of the grid we will produce during the trial > Could you confirm this address: > Mayzo Corporation > 6577 Peachtree Industrial Blvd. > Norcross, GA 30092-3757 > USA > after you confirmation we will send you the sample. > > >You wrote to Mr. Beretta that at the moment you have 140 kg of nucleating >agent available , this quantity is enough for the trial so could you send it >please? (see the address below). >As soon as we receive the material, we could organize the trial and define a >date (likely after 16/06/04). > >Regards >Giorgio Pirovano >Ufficio Tecnico >TENAX s.p.a. >via dell'Industria, 3 >23897 Viganò (Lecco) >ITALY >Tel. +39 039.92191 >Fax. +39 039.9219290 >e-mail: giorgio.pirovano@tenax.net > > >-----Messaggio originale----- >Da: Phil Jacoby [mailto:pjacoby@mayzo.com] >Inviato: venerdì 28 maggio 2004 23.16 >A: giorgio.pirovano@tenax.net >Cc: cesare beretta; pierluigi maggioni >Oggetto: Set-up Trial With Mayzo > > > >Dear Mr. Pirovano: > >Mr. Beretta indicated that you would be contacting me with some information >regarding the proposed trial using our nucleant concentrate on your >production line, and providing information on the amount of concentrate >needed for the trial, and where it would be shipped to. I would like to know >if you have finalized the dates for this trial (I had suggested June 10 and >11), and whether these dates are still viable in terms of the time that it >would take to air-ship you the material. Since Monday, May 31, 2004 is a >holiday in the US, I will not be back in my office until June 1st, and that >is the earliest date that the material can ship. > >I look forward to hearing back from you. > >Best regards, > >Phil Jacoby > >Dr. Philip Jacoby >Vice President of Technology >Mayzo Corporation >6577 Peachtree Industrial Blvd. >Norcross, GA 30092-3757 >Phone: 770-449-9066 ext. 14 >Fax: 770-449-9070 >e-mail: pjacoby@mayzo.com <mailto:pjacoby@mayzo.com> > ><< lbo234_e.pdf >> ><< PPGraphic.pdf >>